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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/099,632	06/18/98	INSLEY	T 53634USA8A

QM02/1025

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
3743	18

DATE MAILED: 10/25/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/099,632	Insley et al.
Examiner	**Group Art Unit**
Leonard R. Leo	3743

☒ Responsive to communication(s) filed on *Aug 3, 2000*.

☒ This action is **FINAL**.

☐ Since this application is in cond tion for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-25* is/are pending in the application.

Of the above, claim(s) *6-8, 11, and 25* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-5, 9, 10, and 12-24* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claims 26-30 are cancelled, claims 1-25 are pending, claims 6-8, 11 and 25 remain withdrawn.

Claim Rejections - 35 USC § 102 and 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 21-23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rosman et al (Figure 2d, column 8, lines 41-46).

Rosman et al discloses all the claimed limitations except a film.

It would have been obvious to one of ordinary skill in the art to employ a plate having any desired thickness to achieve a desired heat exchange or pressure strength.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips et al (Figures 1-3, column 2, lines 14-19).

Phillips et al discloses all the claimed limitations except the first layer being polymeric material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a polymeric material for the first layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claims 1 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bae (Figures 2-3, column 5, lines 22-24 and column 6, lines 13-14).

Bae discloses all the claimed limitations except the first layer being polymeric material..

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a polymeric material for the first layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claims 1-5 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosman et al in view of Bae.

The device of Rosman et al lacks a specific hydraulic radius and channel length to hydraulic radius aspect ratio.

Bae discloses s heat exchanger comprising a first layer 31b having a plurality of flow channels 30 and a cover layer 31a; wherein the channels have a hydraulic diameter of about 0.01 to 0.02 inch (where hydraulic radius is half of the hydraulic diameter, 0.005 to 0.01 inch

or 127 to 254 μm) and an aspect ratio of about 10 to 1200 for the purpose of achieving a desired heat exchange.

Since Rosman et al and Bae are both from the same field of endeavor and/or analogous art, the purpose disclosed by Bae would have been recognized in the pertinent art of Rosman et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Rosman et al a hydraulic radius of about 127 to 254 μm and an aspect ratio of about 10-1200 for the purpose of achieving a desired heat exchange as recognized by Bae.

Regarding claim 14, cross flow is a well known alternate of parallel flow.

Regarding claims 15-20, as applied above, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claims 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosman et al in view of Bae as applied to claims 1-5 and 9-10 12-20 above, and further in view of Schubert et al.

The combined teachings of Rosman et al and Bae lacks perpendicular flow channels in adjacent layers.

Schubert et al discloses a heat exchanger comprising a plurality of layers having a plurality of flow channels 14d; wherein the flow channels in adjacent layers are perpendicular for the purpose of achieving a desired heat exchange.

Since Rosman et al and Schubert et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Schubert et al would have been recognized in the pertinent art of Rosman et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Rosman et al perpendicular flow channels in adjacent layers for the purpose of achieving a desired heat exchange as recognized by Schubert et al.

Regarding claim 24, Figure 4 of Schubert et al discloses an upper cover layer forming the flow channels 14b with a lower first layer in indirect heat exchange relationship with the upper adjacent flow channels.

Response to Arguments

Regarding applicants' remarks with respect to Rosman et al, Rosman et al discloses a polymeric material as claimed. The recitations of a "microchannel" and "film" are merely terms intimating a relative dimension. However, if not claimed in some manner, the dimensional relations are believed to require only routine skill in the art. This ordinary skill is further demonstrated in Rosman et al (column 8, lines 41-45).

Regarding applicants' remarks with respect to Phillips and Bae, applicants fail to show why use of polymeric material renders the claim novel or patentable over the art of record.

Both Phillips and Bae disclose structure similar to the instant invention as claimed and would function in a manner similar, aside from a specific material. Further regarding Bae, in the previous Office action, the hydraulic radius was mistakenly represented as one fourth a hydraulic diameter, when it is actually half. However, the values of the hydraulic radius are still deemed to meet the claimed limitations.

Regarding applicants' remarks with respect to the combination of Rosman et al and Bae, as noted above, Rosman et al discloses a polymeric material. Bae teaches the hydraulic radius and aspect ratio as claimed, which applicants do not dispute. Clearly, one of ordinary skill in the art would employ the teachings of Bae to achieve optimal heat exchange in the device of Rosman et al.

Regarding applicants' remarks with respect to the combination of Rosman et al, Bae and Schubert et al, Schubert et al teaches a heat exchanger composed of stacked layers having adjacent layers arranged perpendicular to one another, which applicants do not dispute. Clearly, one of ordinary skill in the art would employ the teachings of Bae to achieve optimal heat exchange in the device of Rosman et al.

Applicants' remarks are not persuasive, especially when they are not commensurate in scope with the claims. Patentability is determined by what is claimed, not by what is disclosed in the specification.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.

Leonard R Leo

LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3743

October 23, 2000